

PROJECT SS 2022: GRAZ OPEN BICYCLE

CONCEPT AND DESIGN OF A TEMPORARY LIGHTWEIGHT VELODROME IN GRAZ

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Power, speed and extreme turns are all characteristics with cycle tracks due to the extreme geometry.

„In the early days of cycling, track races were crowd pullers. Every better city had a track, if not two. Even in the interwar period, a lot of racing was still done on the track, primarily for money. The track was just as important as the road - if not more important. Today, on the other hand, there is a permanent danger that velodroms will disappear completely from public consciousness. Currently, Austria has two riders who perform at international events. The bicycling scene is small, but for a few years now there have been attempts to reanimate it..“ In: Othmar Pruckner. Die Bahnradprofis vom Ferry Dusika Stadion. <http://www.profil.at/gesellschaft/reportage-bahnradfahrer-ferry-dusika-stadion-6072933.15.9.2016>

„Sports facilities are more than just functional buildings, because many people associate beautiful emotions and memories with them. Therefore, it was a matter of concern to me that the Dusika Stadium should not simply be demolished, but that parts should be used for other purposes, re-used and re-purposed. (...) Now we can dedicate ourselves to the next steps and create first-class training and competition conditions for many Viennese athletes by building a new Sport Arena.“, says sports councillor Peter Hacker, 21.01.2022. <https://wienerbezirksblatt.at/ferry-dusika-stadion-70-steinbloecke-fuer-grossenzersdorf/>

The Structural Design Studio in SS 2022 is dedicated to designing and detailing a temporary lightweight cycling track, a velodrome. This is a current issue due to the dismantling of the only velodrome in Austria, the Ferry Dusika cycling track in Vienna, the 2022 sports year in Graz and the ongoing discussion about cycling being a solution for urban traffic concepts. As a result, the project combines sport and everyday life. An openly accessible temporary racetrack therefore combines sport and everyday cycling, professional and amateur cyclists.

After researching various topics and design studies on physical models, the focus of the studio will be the development and detailing of systems and structures for a cycle track, including a roof if necessary.

PROBLEM DEFINITION

Conceive and design a temporary and dismantlable cycle track in an urban context. The proposed test site is Andreas Hofer Platz. Lightweight construction principles should be used for the supporting structure. The track should be openly accessible to everyone and available for cycling events as well as an extended public space and thus become the central cycling hub that connects sport and everyday cycling in Graz.

The following conditions and issues will be part of the project:

The track:

- The centre of the concept is the 100 - 200 m long cycle track.
- Raising and supporting the track to at a height of approx. 5.0 m
- Construction in prefabricated transportable elements
- Development of the track central part of the track
- If necessary, roofing or partial roofing of the track

Aspects:

- Integration into the urban space
- Cycling as a cultural activity (sport and everyday life)
- Temporary buildings, dismantling system, lightweight construction
- Sustainability and efficiency / resources
- Supporting structures and design details
- Structural design of track and, if applicable, roof structure, working models
- Structural analysis, if necessary with the aid of FE software
- Presentation and modelling